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ABSTRACT

This paper describes the outcomes of a study that explored the significance of the Severity of Illness Rating Scale (SIRS) as a tool for utilization review and program evaluation. The SIRS was first introduced in March 1993 and soon became the centerpiece for the Arthur Brisbane Child Treatment Center's Utilization Review Plan. Since its implementation, the monthly average in-house lengths of stay at Arthur Brisbane (an intermediate to long-term state psychiatric hospital) have decreased 142 days, from 234 days in March 1993 to 92 days in February 1996. The SIRS study involved 63 adolescents (ages 11-17) admitted and discharged between August 1, 1994 and July 31, 1995. The average admissions' SIRS scores, discharge settings, and the adolescents' ages proved to be reasonably good predictors of length of stay. Adolescents with higher SIRS scores, who were placed residentially and who were younger, had longer stays. The SIRS scores supported the appropriateness of admissions and, to a lesser extent, program assignments. The SIRS scores also reported improvement from the point of admission to discharge in 7 out of 8 categories of functioning. (CR)

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Authors

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Introduction

With the JCAHO's "Agenda for Change" and the advent of managed care, outcome assessments have become increasingly important to psychiatric hospitals (JCAHO, 1992). In response to these new challenges, a Severity of Illness Rating Scale (SIRS) was incorporated into the clinical assessment process at Arthur Brisbane Child Treatment Center to determine the appropriateness for admissions and continued stays. Although the current field is replete with measures for assessing the clinical status of adolescents in need of psychiatric inpatient treatment, the validated measures were assessed as either not easily administered or not translating well into our decision making process regarding hospitalization (Wetzler, 1989; Boy-Byrne, Dagadakis, Ries et al., 1995). The clinical leadership selected the SIRS (source unknown at this time) based upon its ease of administration and its face validity with results directly relating to the assessment for continued inpatient hospitalization.

This study explores and speculates upon the significance of the Severity of Illness Rating Scale (SIRS) as a tool for utilization review and program evaluation. The SIRS was first introduced March, 1993 and soon became the centerpiece for the hospital's Utilization Review Plan. Since its implementation, the monthly average in-house lengths of stay at Arthur Brisbane (an intermediate to long term state psychiatric hospital) have decreased 142 days from 234 days in March, 1993 to 92 days in February, 1996. This is remarkable considering that our Hospital has not had any external managed care review process to impact upon days hospitalized.

SIRS scores have provided the following: (a) objective criteria used to determine the appropriateness of admissions and continued stays; (b) clinical profiles by adolescent, unit, facility-wide, and attending psychiatrist; (c) clinical

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outcomes; (d) a flagging system for special treatment reviews; (e) a vehicle to predict lengths of stay; and (f) a vehicle to validate both the facility's Mission and the clinical program design.

Method

The sample in this study consists of 63 adolescents (33 female and 30 male) who were admitted and discharged between August 1, 1994, and July 31, 1995. The adolescents were between the ages of 11 and 17 years old with a mean age of 15.2. This group was 47.6% (n = 30) white, 17.5% (n = 11) Hispanic, 33.3% (n = 21) Black, and 1.6% (n = 1) Oriental. Of the 63 adolescents, 25 were discharged to home, 10 returned to the juvenile justice system, and 28 were discharged to residential placements. The average stay of this sample was 91.2 days, ranging from 4 to 286 days.

The treating psychiatrist assigned the adolescents their SIRS scores based upon the evaluation of the adolescents' clinical condition at the time of admission and at subsequent treatment team reviews. For the purpose of this study, focus was placed on the admission and discharge scores. The SIRS scores numerically indicate the degree of functional impairment in eight separate categories of functioning: (a) affective stability (AS), (b) behavioral impulsivity (BI), (c) thought process (TP), (d) interpersonal relationships (IR), (e) problem solving skills (PSS), (f) social support network (SSN), (g) danger to self (DS), (h) and danger to others (DO). The scheduled assignment of SIRS scores translates into a profile of the adolescents' monthly progress from admission to discharge. The scores are assigned on a 1 through 5 Likert-type Scale, with 1 representing healthy functional behavior and 5 representing the highest degree of dysfunctional behavior. Thus, the higher the SIRS score the more serious the severity of illness. Scores of 4 or 5 in the italicized categories above would theoretically indicate a need for hospitalization.

The scale shares many characteristics of the Global Assessment of Functioning (GAF; Goldman, Skodal, & Lave, 1992). However, it reduces the range of responses to five anchored scores across 8 separate dimensions. Ratings by four treating psychiatrists and three covering psychiatrists completed on average two weeks apart for 16 adolescent yielded significantly correlated interrater reliability (Spearman r), with an $r = .70$, ($p < .01$). The psychiatrists subsequently attributed the differences between ratings to clinical opinion, change in adolescents' functioning, and limitation of information by the covering psychiatrist.

Results

The average admissions SIRS scores, discharge settings (DISC: 1 = juvenile justice, 2 = home, 3 = residential), and the adolescents' age proved to be reasonably good predictors

the adolescents' age proved to be reasonably good predictors of lengths of stay (LOS). Using a stepwise regression procedure, these three variables account for 39% ($R2 = .39$, $N = 63$) of the variance. Table 1 presents a summary of the strength of these relationships based upon the stepwise procedure for predicting LOS.

Adolescents with higher SIRS scores, who were placed residentially and who were younger, have longer stays. The best equation for predicting LOS from this sample was: LOS = .86 + 58.33 (Avg. SIRS) + 30.94 (DISC) - 10.67 (AGE).

In regard to race, sex, or program assignment, no significant relationships were observed between each of these variables and LOS which might result in unintended variation (see Table 2).

Though gender was not significant in terms of LOS, females on average did take a little longer to place than males. The difference disappears with an average of 119 days for females ($n = 31$) compared to 110 days for males ($n = 22$) when you exclude the 10 adolescents returned to juvenile justice placements.

Conceptually, the Hospital's program design consists of the Cottage and the Main House Programs. The Cottages generally provide treatment for adolescents who externalize their behaviors and the Main House for those who internalize their behaviors. Adolescents served, however, fall along a continuum between the two points and do not fit easily into such classification. This study examined whether or not the profiles demonstrated by the SIRS scores validated this split.

Differences between the externalized and internalized programs were not as strong as initially anticipated. We expected the Main House (internalized) Program to have greater disturbance in AS and DS and less on DO. The programs, however, only differed significantly in AS. The difference in the other means, however, were in the expected direction (see Table 3).

BI, TP, PSS, IR, and SSN were tested and found not to significantly vary between programs.

The data accommodates comparisons for LOS and changes in average SIRS scores among psychiatrists, which allows for assessing practitioners' performance. Direct comparison of mean LOS's for each of the four psychiatrists demonstrated a maximum difference of 46 days with the low mean at 77 days and the high mean at 123 days. However, such a comparison needs to adjust for admissions' SIRS scores, the discharge settings, and age of the adolescents since these were found to relate to LOS. Controlling for these variables through an analysis of covariance, only a 17 day difference among the adjusted means was found with none being significantly different from the others (see Table 4).

from the others (see Table 4).

Interestingly, the longer the stays, the greater the change in the average SIRS scores. The adjusted LOS means and average changes in SIRS scores provided a meaningful appraisal of the performance of each adolescent as compared to his or her peers.

The average clinical profile upon admission described an adolescent with poor control of impulses (BI = 3.6), poor social support (SSN = 3.3), poor problem solving skills (PSS = 3.5), and who was a danger to self (DS = 3.6) or others (DO = 3.2). This profile supports the Mission of the Center; upon admission adolescents received a score of 4 or higher in at least one of the categories which was consistent with a need for continued inpatient treatment.

As would be expected, almost all adolescents improved in their average SIRS scores from the time of admission (avg. 3.3) to their final rating prior to discharge (avg. 2.8). The greatest average SIRS score improvements are noted in the categories of BI (.7), DS (.7) , DO (.6), AS (.5), and PSS (.5). All but SSN were statistically significant. Table 5 summarizes the average reduction..

This profile provides some evidence of the dimensions of adolescent functioning in which our hospital makes the most favorable clinical impact. The changes demonstrated in the average SIRS scores represent a verification of the anticipated outcomes of target goals for patient treatment planning, especially the efficaciousness of managing dangerous behaviors.

Discussion

The admission average SIRS score, discharge setting, and the adolescent's age proved to be the best organizational predictors for LOS. The SIRS scores supported the appropriateness of admissions, and to a lesser extent, program assignments. In addition, it provided a fair approach to assessing psychiatrists' performance. The SIRS scores also reported improvement from the point of admission to discharge in 7 out of 8 categories of functioning, with little improvement in SSN. The profile of the adolescents shows that the functions that are major determinants for hospitalization (i.e., BI, DS, and DO) improved the most. According to this measure, the outcomes of treatment indicated that Arthur Brisbane Hospital's treatment program design accomplished its mission

SIRS has been an effective tool in managing the care of adolescents at Arthur Brisbane. Further study is indicated to determine its applicability in acute psychiatric settings. Additional work is also needed to strengthen its reliability, which in turn, may further improve its predictive powers.

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